

CAMPUS OF THE FUTURE

CLIENT : James Cook University
 MAIN CONSTRUCTION COMPANY : BESIX Watpac
 ARCHITECT : Richard Kirk Architect Pty Ltd with i4architecture & Charles Wright Architects
 SUPERINTENDENT : Turner & Townsend
 TYPE : Education



Artist impression
 Artist impressions sourced from Kirk Architects
 with i4 Architecture and Charles Wright Architects

The 4-storey, 9,400m² James Cook University Townsville – Engineering and Innovation Place (EIP) will be the centrepiece of an innovation hub delivering leading-edge STEM (Science, Technology, Engineering and Mathematics) advancement, research and educational facilities for northern Queensland. The project includes an Advanced Manufacturing Studio, Computational and Collaborative Digital Studios, Laboratories, Student Hub, and high quality breakout, meeting and amenity spaces.

BESIX Watpac won the competitive tender process to build the EIP.

Watpac has been in Townsville for more than 20 years, with local building projects including key JCU facilities, the Townsville Stadium and Sun Metals' Zinc Refinery expansion.

The 9,400m² EIP is the centrepiece of an innovation hub in which undergraduate and postgraduate engineering and IT students, industry partners and researchers will converge and collaborate.

Outgoing Vice Chancellor Professor Sandra Harding said the Engineering and Innovation Place will bring together industry and research, linking innovation with specialised skills and expertise. "The EIP will deliver leading-edge STEM (Science, Technology, Engineering and Mathematics) innovation, research and educational facilities for northern Queensland.

"It will be the focal point of an innovation hub that will transform the Townsville campus, and will seamlessly link with the

JCU Ideas Lab in Cairns as the 'combined home' for JCU innovation and digital transformation activities. We are delighted with the construction of this exciting project," Prof. Harding said.

Deputy Vice Chancellor for Services and Resources Tricia Brand said the EIP is a crucial element of a bundle of projects that will modernise the campus. "The EIP – and other projects planned and underway – will transform the Bebegu Yumba campus and provide new and exciting opportunities for

our region. The project is part of the wider health and knowledge precinct – TropiQ – which involves JCU, Townsville University Hospital and Townsville City Council," Ms Brand said.

Deputy Vice Chancellor, Academy Professor Marcus Lane said the EIP will provide world-class teaching and research facilities for students in north Queensland across Engineering, IT, Geology, Earth and Environmental Sciences, Physics and Maths.

"The hands-on teaching and learning facilities are situated on the building's ground floor to ensure visibility of activities, including an active maker space, as well as geology, earth and environmental sciences teaching laboratories."

"The EIP will bring together research and innovation to support business and the community, involving STEM, big data and analytics, information technology and technology transformation. It's purpose-designed to allow industry to work and collaborate on solving industry relevant problems through co-design and prototyping," Professor Lane said.

BESIX Watpac General Manager QLD, NT and NZ and JCU graduate, Wade Cummins said BESIX Watpac is a proud Queensland headquartered company with a history of successfully partnering with JCU to deliver top quality facilities within North Queensland.

"The project builds on the company's strong relationship with the University and BESIX

Watpac's experience in delivering world-class facilities including JCU's Australian Tropical Science & Innovation Precinct, Australian Institute of Tropical Health and Medicine facilities in Townsville, and the JCU Ideas Lab in Cairns.

"BESIX Watpac is proud to be delivering this facility for James Cook University and we are excited by the opportunity to be involved in the project, which will contribute to the development of engineering and STEM graduates for generations to come. We look forward to working with local subcontractors and suppliers to deliver an exceptional building for JCU.

"We have also set a target of 6% Indigenous employment on this project, but we are confident we can actually achieve a much higher rate in line with the 11.6% achieved on the Stadium, 12.3% at Sun Metals and 11.7% on the JCU Ideas Lab in Cairns," Mr Cummins said.

The Federal Government has provided a loan of up to \$96 million from its Northern Australia Infrastructure Facility (NAIF) to develop the this project.

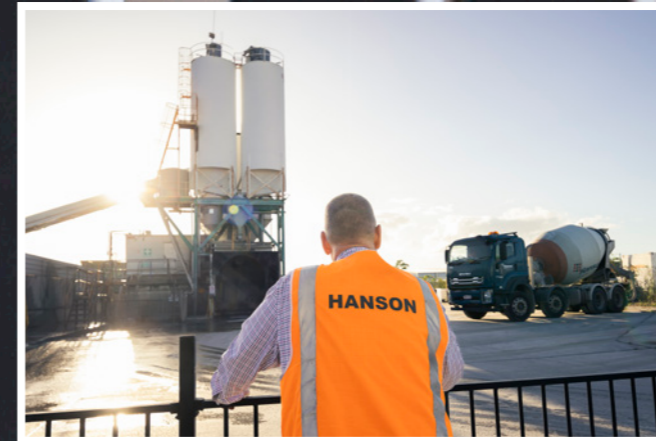
For more information contact JCU Townsville, www.jcu.edu.au

For more information contact BESIX Watpac, website www.besixwatpac.com



Below GPB Constructions completed a range of civil and concreting works for the buildings footings and slabs.

Below Hanson Concrete Materials supplied all of the ready mix concrete for the project, created from recycled fly ash.



GPB Constructions is a family-based civil construction company specialising in reinforced concrete and heavy industry concrete foundations.

Work undertaken for the JCU EIP project included all of the excavation for footings, breaking down the piles and placing and finishing all of the concrete footings, slabs, columns and suspended decks.

“One section of the slab required a super flat floor,” said Project Manager, Kurt Populin. “It had to be within a millimetre of the specifications. We used a truss screed to achieve the finish.”

A truss screed uses a central rotating shaft to drive an eccentric block. The resulting vibration force, which can reach up to 10,000 vpm, is excellent for concrete compaction and removal of air voids. “Overall the project was highly successful, especially given the challenges of operating within a working university,” said Kurt.

GPB Constructions has been operating for 62 years and is well known in the sugar industry for their expertise in the construction of boiler foundations, milling train foundations etc as well as complex culverts and drainage structures. GPB Constructions also specialises

in carpentry and fit outs to schools, shops, offices, laboratories and hospitals.

Based in Townsville, GPB have worked on a range of projects including:

- QLD Country Bank Stadium
- Cowboys Centre for Excellence
- RAAF Joint Health Command
- Marian South Substation
- Magnetic Island Solar Skate Park
- Cairns Convention Centre
- Townsville Hospital and Mental Health Annexe
- Propserpne Mill
- Tableland Mill
- Victoria Mill
- McArthur River Mine
- Townsville Airport Terminal Upgrade

For more information contact GPB Construction, 660 Ingham Road, Townsville QLD 4810, phone 07 4774 6088, email admin@gpbconstructions.com

As a leader in building and construction materials, Hanson Australia were contracted to supply all of the ready mix concrete for the entire build of the Engineering and Innovation Place at James Cook University in Townsville.

“We try to use recycled products where possible on all our jobs,” said Territory Sales Manager, Brian Greig. “However, in more remote areas the recycled material is not as readily available. We managed to achieve a Green Star rating by utilising fly ash.”

Fly ash is a by-product of coal combustion in power stations. Aside from offering environmental advantages by re-using industry waste, adding fly ash also improves the overall performance and quality of concrete by improving workability, reducing water demand, controlling bleeding, and lowering the heat of hydration.

“Another challenge was the inability to source an off-white coloured concrete in this location,” said Brian. “We were able to offset this by using an oxide in the concrete to lighten the colour.”

To ensure smooth deliveries to the university, Hanson delivered to site very early in the morning or late at night when traffic was limited.

Hanson is part of the HeidelbergCement Group, which employs over 59,000 people across five continents. HeidelbergCement is a global leader in aggregates and has leading positions in cement, concrete and heavy building products.



For more information contact Hanson Concrete Materials, Unit 6/661 Ingham Road, Mount St John QLD 4818, phone 07 4774 7245, website www.hanson.com.au

Below SL Hire provided their expertise in completing the technically demanding formwork contract.

Below Goodsell Earthmoving provided quarry products and recycled materials to the site to assist in the projects construction.



SL Hire provides first class formwork for multiple and various civil and commercial projects that can be imagined. The company recently completed the intricate and technically demanding formwork contract for the Engineering and Innovation Place project at James Cook University.

“This job was an unusual and challenging combination of architectural design and engineering practicality,” said Owner and Operator, Steve Wollschlager. “It involved a lot of triangles, different height soffits and lots of beams – none of which lined up. The footprint of the building changes with each level.”

“Being a technology and innovation campus, the intricate nature of the design is on display,” said Steve. “Even the lift core had glass doors so everyone can see how it was put together and how it works.”

“There were also a number of engineering restraints that changed the way we did the job. The round columns needed to be completed over two pours due to the huge casting plates.”

SL Hire also uses state-of-the-art laser guided screed technology to produce superior results in concrete finishes. This new process has

revolutionised the way concrete is placed and levelled. Laser Screeds assist in reducing labor costs while increasing volume production and providing a supreme finish for your floor.

The SL Hire team is led by Steve Wollschlager, who has been assisting concreters in North Queensland, Central Queensland and the Northern Territory with placing and finishing concrete for over 25 years. Steve’s experience provides SL Hire an edge in how to place concrete on projects within in the hot, dry, windy or wet conditions that occur throughout Queensland, with confidence, leading to a better result for their projects.

For more information contact SL Hire Pty Ltd, 47 Bell Street, South Townsville QLD 4810, phone 0438 693 437, email contact@slhire-townsville.com, website www.slhire-townsville.com

As a family owned and operated business, the team at Goodsell Earthmoving have built a reputation for excellent customer service, high quality products, huge range of machinery hire and the very best product available.

Goodsell Earthmoving provided a wide range of services on the James Cook University Townsville EIP project including supply and delivery of quarry products and recycled materials to a number of contractors working on the project. “We cleaned up the site, removing old concrete, dirt and green waste which was brought back to our yard to be recycled into a number of different products,” said Goodsell spokesperson, Joelene Gallagher. “These products are then sold back to the building and construction industry.”

As well as recycled concrete products, Goodsell supplied and delivered reprocessed gravel for building access roads, hardstand areas and building pads. Quarry products supplied and delivered included sand, select fill, gabion rock and sandy loam. Trucks, loaders and excavators were also hired from Goodsell for the project.

“The challenges for all contractors on this project was access in and around the site during and after wet weather,” said Joelene. “Part of

our scope was to deliver the recycled product for the access roads and hardstand areas for machinery and workers to be able to access the site safely.”

Goodsell Earthmoving offers a range of earthmoving services across Queensland. Based in Townsville, servicing northern and western Queensland, Goodsell Earthmoving also provides a range of plant and machinery hire and specialised landscaping and reprocessed materials.

Exceptional customer service, one convenient location and high quality products and services sets Goodsell Earthmoving apart from the rest of the industry. They are large enough to provide economies of scale on competitive projects and small enough to look after someone doing a bit of work in the backyard.

For more information contact Goodsell Earthmoving, 721 Flinders Highway, Roseneath QLD 4816, phone 07 4778 2791, email admin@goodsellearthmoving.com.au, website www.goodsellearthmoving.com.au

Below AT-PAC created the scaffold design and supply for the unique scaffold requirements for the project.

Below Architectural Roofing and Wall Cladding completed the metal cladding works for the façade, soffit and roof edge.



AT-PAC is the leading manufacturer and importer of Ringlock Scaffolding in the Australian Market. With their global presence, competitive pricing and market leading products they were the obvious choice for the scaffold design and material supply for the Engineering and Innovation Place at James Cook University.

“Our scope was to provide the scaffold design and material supply for Cava Scaffold Solutions to implement and erect,” said Rhys Dixon, AT-PAC Regional Director (East Coast region).

“The job was fairly straightforward except for the large overhanging roof,” said Rhys. “We utilised AT-PAC’s load bearing braces and designed a large cantilevered section upwards of 4m in areas to the underside of the roof, to provide sufficient space to work. This eliminated the need to build additional scaffold from the ground up. The solution provided a significant saving in both labour and scaffold material costs”

AT-PAC has a proven track record of project delivery excellence across the globe, they provide unmatched professional and skilled engineering solutions globally. The AT-PAC Ringlock System and proprietary project management software [Hi-Vis] are custom-designed to meet

the individual challenges of any job in the Oil and Gas, Industrial, Resource, Commercial and Civil Infrastructure sectors.

As one of the leading scaffolding manufacturers in the world, AT-PAC is dedicated to delivering high-quality products and innovative scaffolding solutions.

“Whether you are looking to buy or rent scaffold, chasing design and engineering support, our team of experienced professionals will find the right scaffolding solution to make your project a success,” said Rhys.

AT-PAC delivers to, and executes projects Australia wide from their branches located in Perth, Sydney, Brisbane, and Gladstone.

For more information contact AT-PAC, 153 Rossmanns Road, Staysilton QLD 4207, phone 07 3807 4987, website www.at-pac.com

Architectural Roofing and Wall Cladding (ARC) is regarded as one of the best in the business when it comes to roofing and wall cladding in copper and zinc.

ARC was contracted to complete the major metal cladding works for the façade, soffit and roof edge consisting of titanium zinc and corten steel on the Engineering and Innovation Place project at James Cook University.

“To round up the package, we also took on all the sub-frames,” said General Manager, Juerg Wilk. “All up we used over 100 tons of material for this job, including approx 50 tons of zinc and 15 tons of corten steel.”

The Townsville location required all systems to be cyclone proof. ARC developed special systems and fixing methods to comply with the strict specifications and requirements whilst keeping a highly appealing visual aspect to meet the architect’s expectations.

“Another challenge was the highly complex soffit,” said Juerg. “The geometry was challenging and at times we had up to six different areas (or plains) in various angles meeting at one point.”

The majority of the project was installed during summertime in Townsville. High temperatures and humidity were a big challenge, however the ARC team were still able to excel, working hand in hand with ARC factories in Brisbane and Sydney to deliver large and complex orders in the shortest time possible, allowing for a speedy installation.

“We would like to thank Richard Kirk (Kirk Studio) for giving us yet again the opportunity to install a high performance material (Elzinc) on such an outstanding building and architectural masterpiece,” said Juerg.

ARC is proudly Australian owned and has pioneered the implementation of European roof and façade systems in Australia over the past 30 years.

For more information contact Architectural Roofing and Wall Cladding, Unit 2/37A King Road, Hornsby NSW 2077, phone 02 9482 4461, email nsw@arcroofing.com.au, website www.arcroofing.com.au

Below Glen Carol Painting provided interior painting services and clear protective coatings to the feature timber on the project.

Below Premier Ducts custom manufactured all of the air conditioning ducts for the project.



Glen Carroll Painting were contracted to deliver all of the painting, internally and externally, for the Engineering and Innovation Place at James Cook University. Starting in October 2022, Glen Carroll Painters had three to four painters, including an onsite foreman, involved in the project that was more time-intensive than technically challenging.

“Most of the work is internal. The biggest challenge was the amount of timber work that needed to be painted in a clear finish, which provides a protective coat for the timber, and guards it against stains, water damage, and natural wear and tear,” explained Director, Glen Carroll. “The building itself is a really unique structure. The design and all of the finishes are so impressive. It was a highlight to be involved.”

Glen Carroll Painting is a locally owned and operated business providing professional painting & decorating services to the domestic, residential and commercial industries in the Townsville region since 1992.

Glen’s highly qualified and experienced team takes pride in providing their valued customers with reliable service, the highest quality workmanship and expert advice. The company’s reputation for quality

work has delivered repeat business with a number of construction companies.

“We have a team of dedicated and professional tradesmen who take pride in their work and provide a reliable and high quality service to ensure projects are finished to your requirements, on time and with a quality finish,” said Glen.

Glen Carroll Painting’s current projects include Riverway Library, Kelso Childcare Center, Ergon – Garbutt Substation and Queensland Warehouse.

For more information contact Glen Carroll Painting, phone 07 4772 1464, email admin@glen Carrollpainting.com.au, website www.glenpaintingtownsville.com.au

JCU’s Engineering and Innovation Place (EIP) provides a range of learning and research spaces needing specialised air handling. Premier Ducts manufactured all of the air conditioning ductwork across the project, to ensure the HVAC air flow worked efficiently.

To meet the specific needs of the EIP, “our take-off team built a 3-D model using Autodesk CAMduct to the exact match of the construction drawings as well as confirmation with onsite HVAC team to ensure the model also reflected the as-built layout of the building,” explained Quang Khuu, Senior Production Engineer. Each 3-D template has a unique QR code, to track progress through production to installation.

“I have dealt with a lot of ductwork manufacturing companies, and [Premier Ducts] are the best so far. Everything was made to plan, and it has been a smooth process,” said Brian Kent, Site Manager Value Added Construction.

With deliveries scheduled for every two weeks, Premier Ducts ensured the required ductwork was completed in advance and stored ready for delivery. “We pride ourselves on our transparency. When the ductwork is loaded and ready for transport, we provide delivery dockets and colour-marked up ductwork sequences on drawings for every trip, allowing the

site manager to have a clear record of the amount of ductwork loaded onto each truck and easy identification,” explained Quang Khuu, Senior Production Engineer.

Approximately 6,400m² of insulation and 8,700m² of metal ductwork at 100% accuracy was manufactured for the project using Australian made sheet metal and insulation. “Supporting our Australian made material products is important to our company,” said Katy Nguyen, General Manager. Premier Ducts team is proud that their ductwork complied, often time, exceeded AS 4254.2-2012 and AS 1668.1:2015 compliance for HVAC ductwork.

Established in 2015, Premier Ducts is one of the largest manufacturers in Australia with facilities in Brisbane and Sydney. The company’s commitment to excellence in all aspects of duct manufacturing and customer service is second to none.

“My experience has been good, and the communication is excellent. Everything we ever asked for has been delivered, said Tanya Polino, Project Manager, JCU EIP.

For more information contact Premier Ducts, info@premierducts.com.au